

REMARKS

This application has been reviewed in light of the Office Action mailed on July 8, 2003. Claims 1-4 and 6 are pending in the application with Claims 1 and 6 being in independent form. By the present amendment, Claims 1, 4 and 6 have been amended. No new matter or issues are believed to be introduced by the amendments.

Claims 1-4 and 6 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,852,646 issued to Klotz et al. on December 22, 1998 ("Klotz et al.") in view of U.S. Patent No. 6,324,254 issued to Pflaum on November 27, 2001 ("Pflaum") and U.S. Patent No. 6,266,553 issued to Fluhrer et al. on July 24, 2001 ("Fluhrer et al.").

Applicants have amended Claims 1 and 6 to better define Applicants' invention and to overcome the rejection. Specifically, Claim 1 has been amended to recite "An X-ray imaging method comprising the steps of: forming a set of 2-dimensional X-ray images of an object to be examined, for example the coronary vascular system of a patient, by means of a scan rotation of an X-ray source around said object over a run length, said X-ray images being acquired at predetermined characteristic time moments in a cardiac cycle of the object; and reconstructing a 3-dimensional volume of the imaged object, wherein the run length of the scan rotation over substantially 180° is approximately 10° per second, and wherein the number of measuring points obtained in successive cardiac cycles for reconstructing the 3-dimensional volume is reduced." (Emphasis added) The second underlined limitation was added in response to the previous Office Action. Applicants continue to maintain that this limitation is not disclosed or suggested by the cited references, taken alone or in combination. Similar language as that underlined for Claim 1 is recited by Claim 6.

Klotz et al., Pflaum and Fluhner et al., taken alone or in combination, do not disclose or suggest all the limitations recited by Applicants' Claim 1. First, the first two references do not disclose or suggest reducing the number of measuring points in successive cardiac cycles, as recited by Applicants' Claim 1. Accordingly, as in the last Office Action, the Examiner relies on the third reference, namely, Fluhner et al., for disclosing this feature.

It is respectfully submitted that Fluhner et al. does not disclose or suggest this feature and therefore, does not cure the deficiencies of the first two references. Fluhner et al. discloses obtaining a dataset completely within each of a number of successive time intervals δt then combining the datasets from the successive time intervals δt to produce a low-motion image of the heart. See column 1, line 64 to column 2, line 14 and column 3, lines 12-27.

It is respectfully submitted that one cannot assume or read into the apparatus and method disclosed by Fluhner et al. and conclude that the tomography apparatus and method disclosed by Fluhner et al. reduces the number of measuring points obtained in successive time intervals δt or cardiac cycles when Fluhner et al. does not disclose or suggest such a feature. In other words, there is no disclosure or suggestion by Fluhner et al. that each dataset obtained completely within a respective time interval δt contains less measuring points from a previous dataset, and so on, for reconstructing low-motion images of the heart by the computer 8.

Accordingly, Fluhner et al. does not disclose or suggest reducing the number of measuring points obtained in successive cardiac cycles for reconstructing the 3-dimensional volume, as recited by Applicants' Claims 1 and 6.

Second, none of the cited references, taken alone or in combination, disclose or suggest the limitation "wherein the run length of the scan rotation over substantially 180° is approximately 10° per second," as recited by Applicants' Claims 1. Similar language is recited by Applicants' Claim 6. The Examiner specifically cites Pflaum at column 1, lines 64-67 to column 2, lines 1-2, and column 2, lines 5-9 for disclosing this limitation. Applicants respectfully disagree. Pflaum does not disclose the angular velocity of the X-ray pickup system at this particular location cited by the Examiner.

Pflaum discloses the angular velocity at column 1, lines 45-50. Pflaum states the following: "This object is achieved in accordance with the invention in a method and X-ray device wherein a number of digital X-ray images are picked-up during a slow motion of an X-ray pickup system of an X-ray device, this slow motion ensuing along an orbit with an angular velocity smaller than 6° per second...." (Emphasis added) This angular velocity is not approximately 10° per second as recited by Applicants' Claims 1 and 6.

Pflaum further states at column 2, lines 17-24 the following: "The movements of the X-ray image pickup system can advantageously ensue with an angular velocity <2° per second, particularly with 0.50[°] per second, and the speed of movement of the X-ray image pickup system can be selected dependent on the frequency of movement of the acquired vessel motions and organ motions, i.e. the angular velocity with which the image pick-up system moves can definitely be selected all the higher, the higher the heart frequency is." (Emphasis added) The angular velocity disclosed in this paragraph is also not approximately 10° per second as recited by Applicants' Claims 1 and 6. Even though this paragraph states that the angular velocity can be selected "all the higher," Pflaum does not disclose or suggest an angular velocity approximately 10° per second as recited


by Applicants' Claims 1 and 6. At best, Pflaum discloses an angular velocity of "smaller than 6° per second" as mentioned in the previous paragraph.

Accordingly, withdrawal of the rejection with respect to Claims 1 and 6 and allowance thereof are respectfully requested. Claims 2-4 depend from Claim 1 and therefore include the limitations of Claim 1. Therefore, for at least the same reasons given above for Claim 1, Claims 2-4 are believed to be allowable over the cited references, taken alone or in combination. Accordingly, withdrawal of the rejection with respect to Claims 2-4 and allowance thereof are respectfully requested.

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application, namely, Claims 1-4 and 6, are believed to be in condition for allowance and patentably distinguishable over the art of record.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call John Vodopia, Esq., Intellectual Property Counsel, Philips Electronics North America, at 914-333-9627.

Respectfully submitted,


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